



# **ITX-E9650**

Intel GME965, Mini-ITX

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User's Manual

Rev.01, Sep. 2009

## Statement

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## Packing List

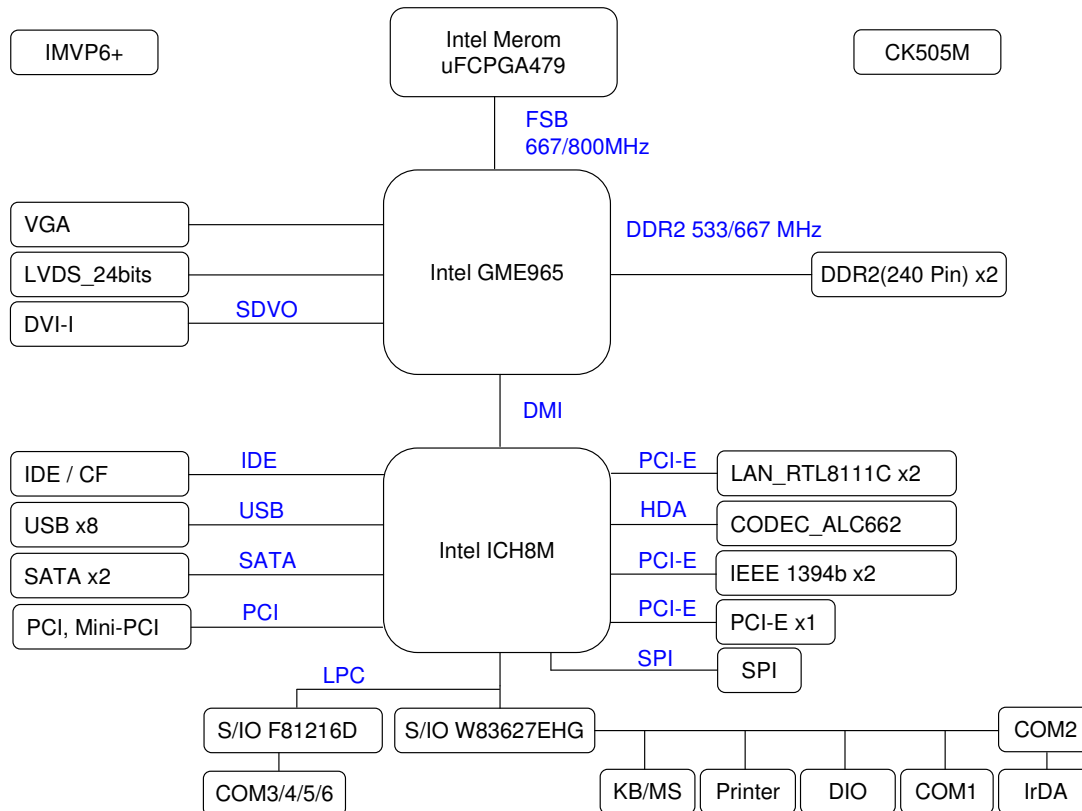
- ☐ 1 x System board
- ☐ 1 x Driver CD (Include user's manual)
- ☐ 1 x I/O Shield
- ☐ 1 x Serial ATA data cable
- ☐ 1 x RS-232 cable(2 Port)
- ☐ 1 x USB cable(2 Port)
- ☐ 1 x Printer cable

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## Chapter 1 Product Information

This chapter introduces the product features, jumper and connector information.

### 1.1 Block Diagram

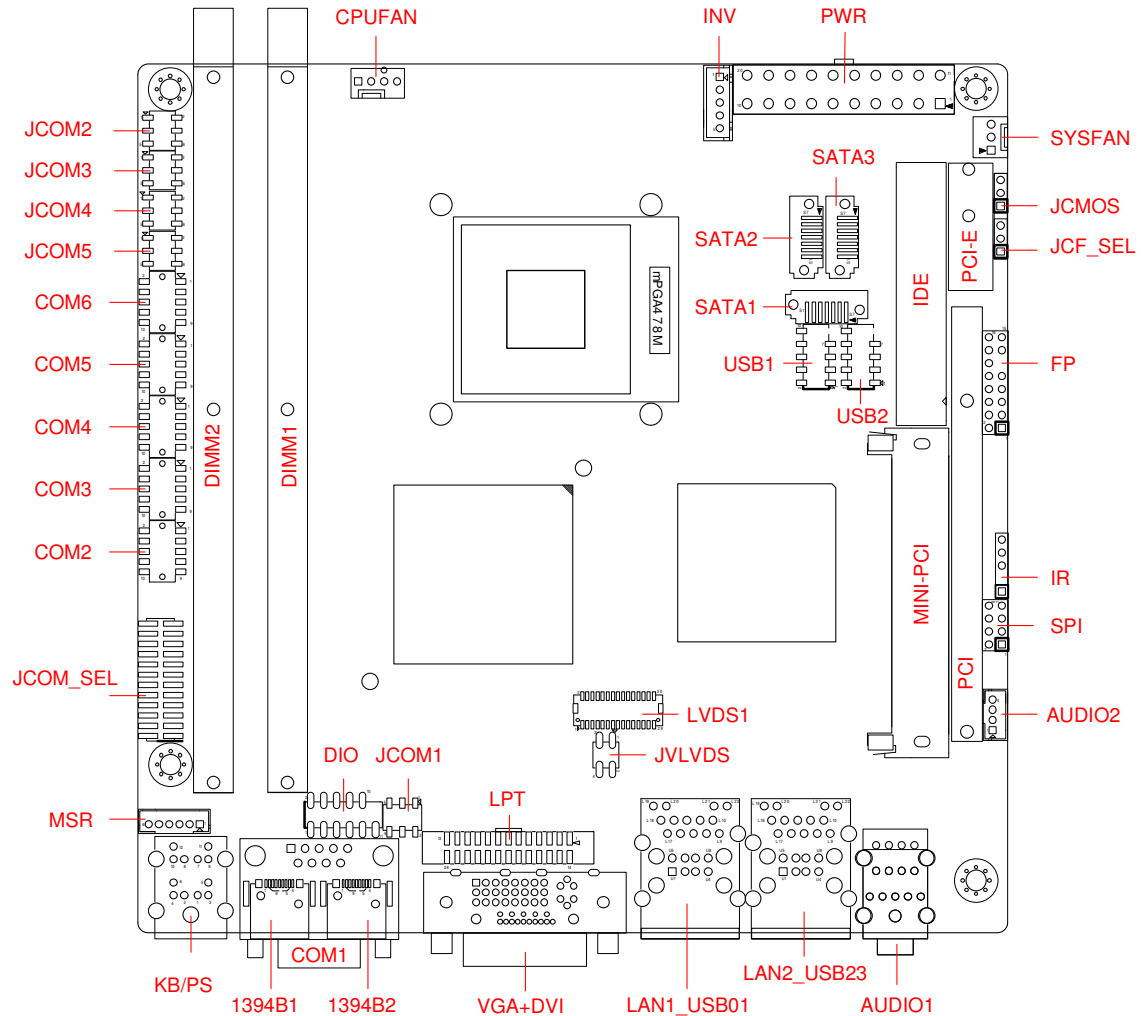


## 1.2 Features

System Processor / Chipset	Processor	Intel Socket-P processor, Core 2 Duo and Celeron M
	FSB	533/667/800 MHz
	Chipset	Intel GME965/GLE960 + ICH8M
	BIOS	AWARD 16Mb SPI
Memory	Technology	DDR2 533/667 SDRAM
	Max. Capacity	Up to 4GB
	Socket	2 x 240-Pin DIMM
Display	Chipset	Intel GME965 integrated GMAX3100
	VRAM	Intel DVMT 4.0
	VGA Resolution	Up to 2048 x 1536 (QXGA)
	DVI Resolution	Up to 1600 x 1200 (UXGA)
	LVDS Resolution	24 bits, dual channel, Up to 1600 x 1200 (UXGA)
	TV-Out	None
	Dual Display	VGA+LVDS, VGA+DVI, DVI+LVDS
Ethernet	Interface	Dual 10/100/1000 Mbps
	Controller	Realtek RTL8111C
Audio	Interface	High Definition Audio 5.1 channel
	Controller	Realtek ALC662 HD CODEC
SATA	Max. Data Transfer Rates	300 MB/s
	Port	2
IDE	Channel	1
	Mode	IDE, (Ultra ATA100/66/33), 1x 44 Pin connector for 2.5" slim type with power
	Compact Flash	1, Compact Flash I/II
Expansion Slot	PCI-E x1	1
	PCI	1
	Mini PCI	1

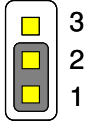
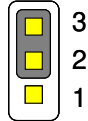
Internal Connector	LVDS	1
	USB 2.0	4
	COM	5 [ 1(RS-232), 3(RS-232, supply 5V and 12V), 1(RS-232/422/485, supply 5V and 12V)]
	Parallel	1
	Audio Amplifier	1(6W(4Ω) stereo)
	Compact Flash	1 (Bottom Side)
	IrDA	1(COM2 Optional)
	PS2	1
	DIO	8bit Digital I/O(4 In + 4 Out)
Rear I/O	PS2	2 (1x K/B and 1x Mouse)
	VGA	1
	COM	1(supply 5V and 12V)
	DVI	1x DVI-I
	LAN	2x RJ45
	USB 2.0	4
	IEEE1394b	2
	Audio	3 (MIC.-In, Line-In, Line-Out)
Power	Type	ATX (20 Pin)
Watchdog Timer	Interval	Programmable 1 ~ 255 sec./min.
	Output	System reset
Environment	Operating Temp.	-5°C ~ 60°C (23°F ~ 140°F)
	Storage Temp.	-20°C ~ 80°C (-4°F ~ 176°F)
	Relative Humidity	0%~ 95% (non-condensing)
Form Factor	Dimension (L x W)	Mini-ITX (170mm x 170mm) (6.69" x 6.69")

## 1.3 PCB Layout

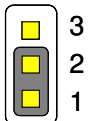
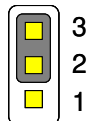


## 1.4 Jumper Setting

### JCMOS : CMOS Clear

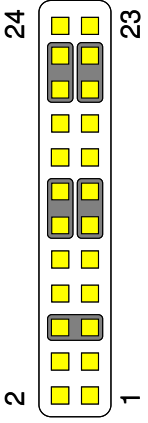
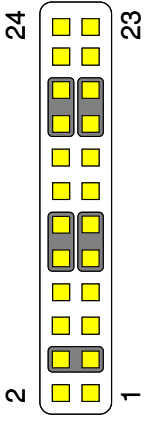
Pin No.	1-2	2-3
Function	Normal Operation (Default)	Clear CMOS Contents
Jumper Setting		

### JCF SEL : Compact Flash (Master/Slave) Select

Pin No.	1-2	2-3
Function	Master Mode	Slave Mode (Default)
Jumper Setting		

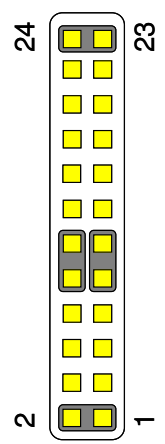
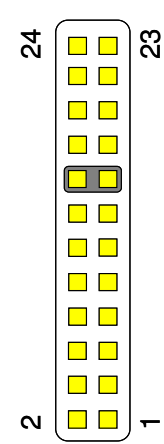
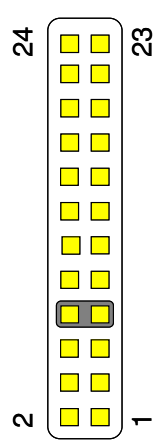
Note: Compact Flash signal share with IDE channel

### JCOM SEL : RS-232/RS-422/RS-485 Select (1/2)

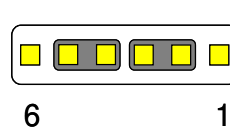
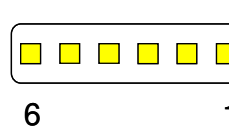
Pin No.	5-6, 11-13, 12-14, 19-21, 20-22	3-4, 9-11, 10-12, 17-19, 18-20
Function	RS-232 (Default)	RS-422
Jumper Setting		



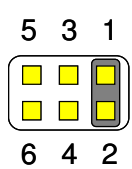
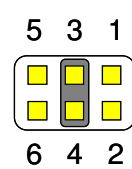
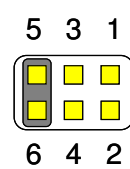
## JCOM SEL : RS-232/RS-422/RS-485 Select (2/2)

Pin No.	1-2, 9-11, 10-12, 23-24	15-16	7-8
Function	RS-485	RS-422 RX 100Ω Termination	RS-422 TX 100Ω / RS-485 Termination
Jumper Setting			

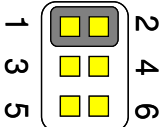
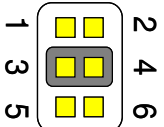
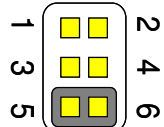
## MSR : MSR (Magnetic Stripe Reader) Connection

Pin No.	2-3, 4-5	NC
Function	Normal Operation (Default)	Connect to MSR cable
Jumper Setting		

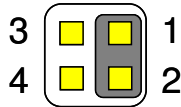
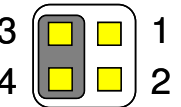
## JCOM1 : COM1 (5V/12V/RI) Select

Pin No.	1-2	3-4	5-6
Function	+5V	Modem Ring In (Default)	+12V
Jumper Setting			

## **JCOM2/3/4/5 : COM2/3/4/5 (5V/12V/RI) Select**

Pin No.	1-2	3-4	5-6
Function	+5V	Modem Ring In (Default)	+12V
Jumper Setting			

## **JVLVDS : LCD Power (+3.3V / +5V) Select**

Pin No.	1-2	3-4
Function	LCD Power +3.3V (Default)	LCD Power +5V
Jumper Setting		

## 1.5 Connector Function List

Connector	Function	Note
1394B1, 1394B2	1394b Connector	
AUDIO1	Audio Connector (Line-In, Line-Out, Mic-In)	
AUDIO2	Audio Connector (Amplifier Out)	
COM1	COM1 Connector	
COM2, COM3, COM4, COM5, COM6	Internal COM2/3/4/5/6 Port Connector	
CPUFAN	CPU Fan 4Pin Connector	
DIMM1, DIMM2	DDR2 240 Pin Connector	
DIO	Digital I/O Connector	
FP	Front Panel Connector	
IDE	IDE 44 Pin Connector	
INV	Inverter Connector	
IR	IrDA Connector	
KB/PS	PS2 Keyboard and Mouse Connector	
LAN1_USB01	LAN1 and USB 0/1 Connector	
LAN2_USB23	LAN2 and USB 2/3 Connector	
LPT	Printer Connector	
LVDS1	LVDS Connector	
MINI-PCI	Mini-PCI Connector	
MSR	MSR Connector	
PCI	PCI Connector	
PCI-E	PCI Express x1 Connector	
PWR	ATX Power 20 Pin Connector	
SATA1, SATA2, SATA3	SATA Connector	
SYSFAN	System Fan 3Pin Connector	
USB1, USB2	Internal USB Connector	
VGA + DVI	VGA and DVI-I Connector	

## 1.6 Internal Connector Pin Define

### AUDIO2 : Audio signal Connector with Box-header (2.0 mm)

Pin No.	Signal
1	Amplifier Out Right Channel
2	Ground
3	Ground
4	Amplifier Out Left Channel

### COM2/3/4/5/6 : Serial Port with Box-header (2.0 mm)

Pin No.	Signal	Pin No.	Signal
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI/+5V/+12V
9	Ground	10	RI/+5V/+12V

### CPUFAN : CPU 4Pin FAN Connector

Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense
4	Control

### DIO : Digital I/O Connector with Pin-header (2.54mm)

Pin No.	Signal	Pin No.	Signal
1	DIO-Out0	2	DIO-In0
3	DIO-Out1	4	DIO-In1
5	DIO-Out2	6	DIO-In2
7	DIO-Out3	8	DIO-In3
9	+12V	10	+5V
11	Ground	12	Key

## **FP : Front Panel Connector with Pin-header (2.54mm)**

Pin No.	Signal	Pin No.	Signal
1	+5V (470 Ohm)	2	+5V (470 Ohm)
3	NC	4	HDD LED#
5	Ground	6	5VSB (470 Ohm)
7	System Reset#	8	Power LED
9	Ground	10	FSPK#
11	Key	12	NC
13	Power Switch#	14	NC
15	Ground	16	+5V

## **IDE : HDD IDE Connector with Box-header (2.0mm)**

Pin No.	Signal	Pin No.	Signal
1	RESET#	2	Ground
3	Data 7	4	Data 8
5	Data 6	6	Data 9
7	Data 5	8	Data 10
9	Data 4	10	Data 11
11	Data 3	12	Data 12
13	Data 2	14	Data 13
15	Data 1	16	Data 14
17	Data 0	18	Data 15
19	Ground	20	NC
21	DMA REQ	22	Ground
23	IOW#	24	Ground
25	IOR#	26	Ground
27	IOCHRDY	28	Pull-down
29	DMA ACK#	30	Ground
31	INT REQ	32	NC
33	SA1	34	P66DETECT
35	SA0	36	SA2
37	HDC CS1#	38	HDC CS3#
39	HDD Active#	40	Ground
41	+5V	42	+5V
43	Ground	44	NC

## **INV : Inverter Connector with Box header (2.50 mm)**

Pin No.	Signal
1	+12V
2	+12V
3	Ground
4	Inverter Brightness Control
5	Inverter Enable

## **IR : IR Connector with Pin-header (2.54 mm)**

Pin No.	Signal
1	+5V
2	Key
3	IR-RX
4	Ground
5	IR-TX

## **LPT : Parallel Port Connector with Box-header (2.0 mm)**

Pin No.	Signal	Pin No.	Signal
1	Strobe#	14	Auto Form Feed#
2	Data 0	15	Error#
3	Data 1	16	Initialization#
4	Data 2	17	Printer Select IN#
5	Data 3	18	Ground
6	Data 4	19	Ground
7	Data 5	20	Ground
8	Data 6	21	Ground
9	Data 7	22	Ground
10	Acknowledge#	23	Ground
11	Busy	24	Ground
12	Paper Empty	25	Ground
13	Printer Select	26	Ground

## **LVDS1 : LVDS Panel Signal with Wafer Connector (1.0 mm)**

Pin No.	Signal	Pin No.	Signal
1	Ground	2	Ground
3	L_DC3	4	L_DC3-
5	L_CLK0	6	L_CLK0-
7	L_DC2	8	L_DC2-
9	L_DC1	10	L_DC1-
11	L_DC0	12	L_DC0-
13	Ground	14	Ground
15	L_DC7	16	L_DC7
17	L_CLK1	18	L_CLK1-
19	L_DC6	20	L_DC6
21	L_DC5	22	L_DC5
23	L_DC4	24	L_DC4
25	DDC Clock	26	DDC Data
27	LVDS Power	28	LVDS Power
29	LVDS Power	30	LVDS Power

Note : LVDS Power = +5V or +3.3V (Default)

## **MSR : Internal Keyboard and Mouse Connector with Box-header (2.0 mm)**

Pin No.	Signal
1	+5V
2	KCLK_CON
3	KCLK_KBC
4	KDAT_CON
5	KDAT_KBC
6	Ground

## **SYSFAN : System FAN 3Pin Connector**

Pin No.	Signal
1	Ground
2	Fan Power (+12V)
3	Speed Sense

**USB1 : Internal USB Connector with Pin-header (2.0 mm)**

Pin No.	Signal	Pin No.	Signal
1	USB Power (+5V)	2	USB Power (+5V)
3	USB DATA6-	4	USB DATA7-
5	USB DATA6+	6	USB DATA7+
7	Ground	8	Ground
9	Key	10	Ground

**USB2 : Internal USB Connector with Pin-header (2.0 mm)**

Pin No.	Signal	Pin No.	Signal
1	USB Power (+5V)	2	USB Power (+5V)
3	USB DATA4-	4	USB DATA5-
5	USB DATA4+	6	USB DATA5+
7	Ground	8	Ground
9	Key	10	Ground



## Chapter 2 BIOS Setup

This chapter introduces BIOS setup information.

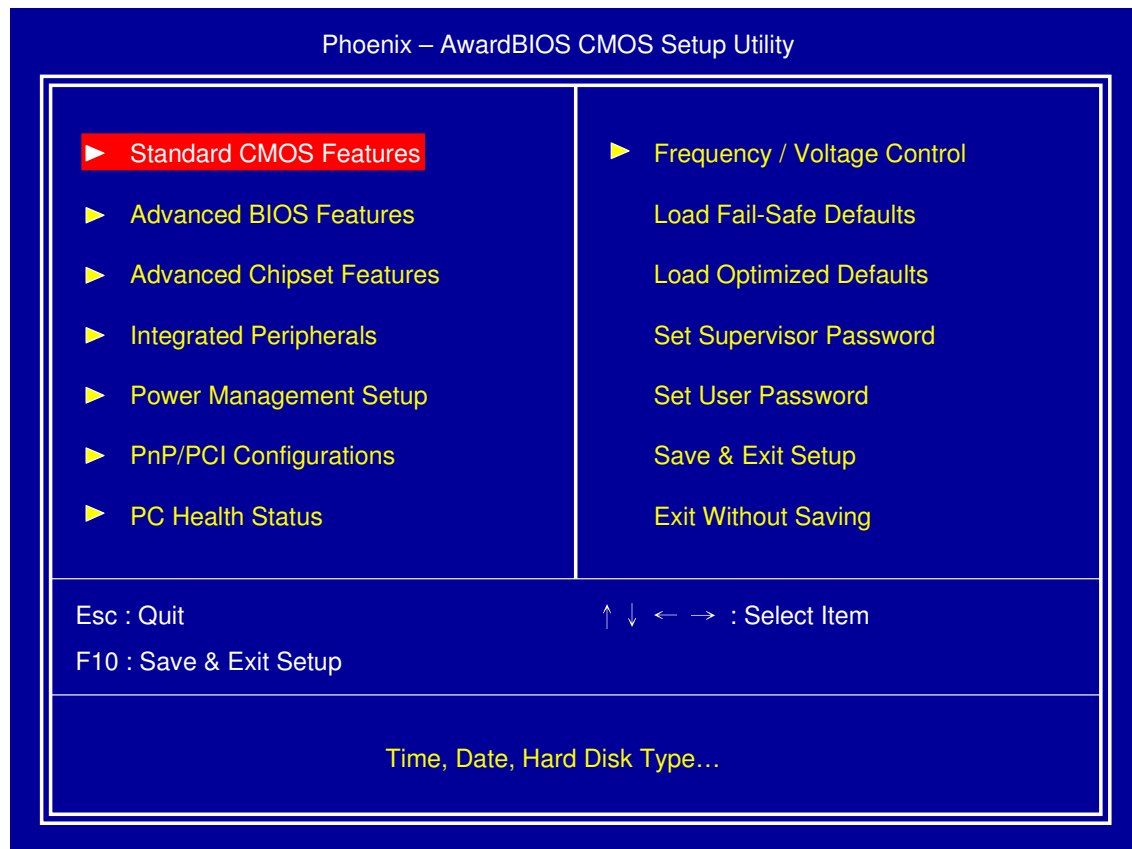
Power on or reboot the system board, when screen appear

“Press DEL to enter SETUP”, Press <DEL> key to run BIOS SETUP Utility.

Note: The BIOS configuration for reference only, may subject to change without prior notice.

### 2.1 Main Menu

Please use arrow keys to select item, then press <Enter> key to accept or enter the sub-menu.



## 2.2 Standard CMOS Features

Phoenix – AwardBIOS CMOS Setup Utility  
Standard CMOS Features

<p>Date (mm:dd:yy)      Thu, Aug 27 2009 Time (hh:mm:ss)      11 : 12 : 38</p> <p>▶ IDE Channel 0 Master      [ None ] ▶ IDE Channel 0 Slave      [ None ] ▶ IDE Channel 2 Master      [ None ] ▶ IDE Channel 2 Slave      [ None ] ▶ IDE Channel 3 Master      [ None ]</p> <p>Video      [ EGA / VGA ] Halt On      [ All , But Keyboard ]</p> <p>Base Memory      640K Extended Memory      514048K Total Memory      515072K</p>	<p style="text-align: center;">Item Help</p> <p>Menu Level ▶</p> <p>Change the day, month, year and century</p>
--	---

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

☐ **Date**

Set system date.

☐ **Time**

Set system time.

☐ **IDE Channel 0 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 2 Master/Slave**

Press <Enter> for IDE device automatic detection.

☐ **IDE Channel 3 Master**

Press <Enter> for IDE device automatic detection.

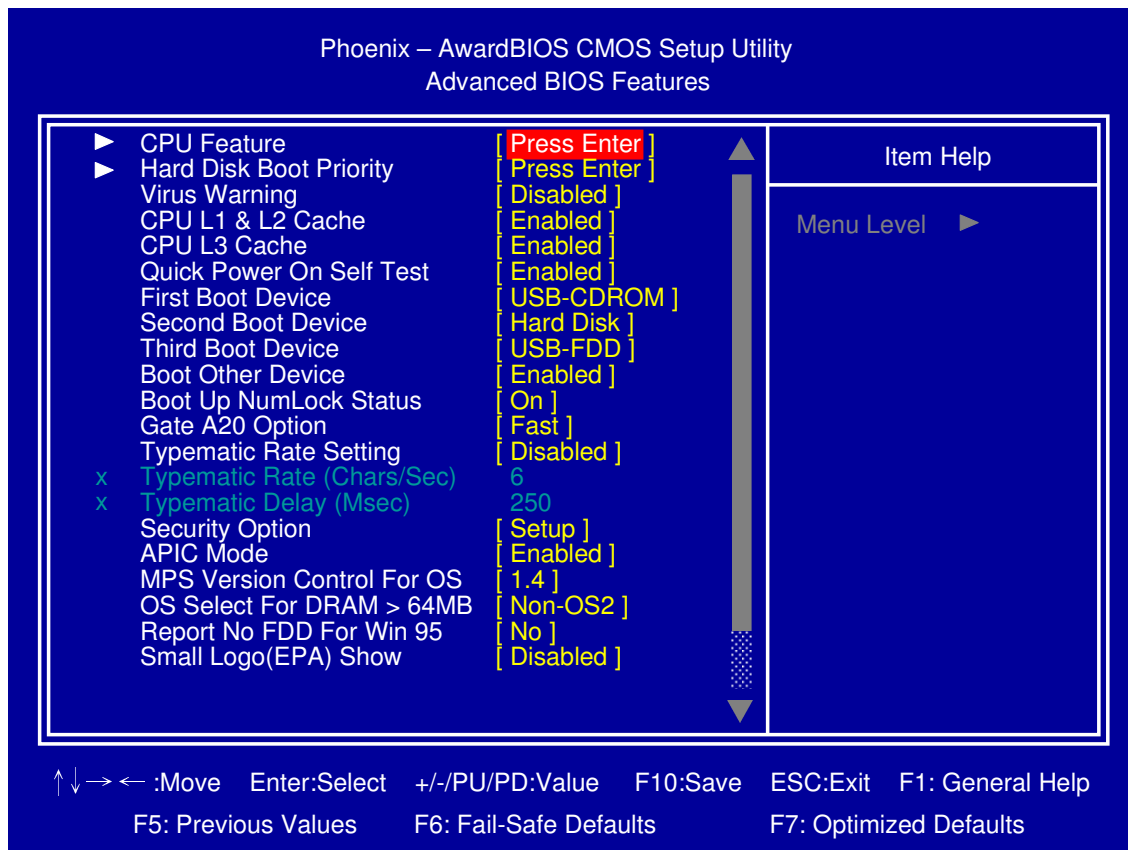
## ☐ Video

Select Video device type.

## ☐ Halt on

Select stop procedure or ignore when error detected during POST (Power On Self Test).

## 2.3 Advanced BIOS Features



## ☐ CPU Feature

Press <Enter> to select CPU parameter.

## ☐ Hard Disk Boot Priority

Press <Enter> to select Hard Disk boot device priority.

## ☐ Virus Warning

Select "Virus Warning" Enabled/Disabled.

☐ **CPU L1 & L2 Cache**

Select "CPU L1 & L2 Cache" Enabled/Disabled.

☐ **CPU L3 Cache**

Select "CPU L3 Cache" Enabled/Disabled.

☐ **Quick Power On Self Test**

Select "Quick Power On Self Test" Enabled/Disabled.

☐ **First/Second/Third Boot Device**

Select boot device priority.

☐ **Boot Other Device**

Select "Boot Other Device" Enabled/Disabled.

☐ **Boot Up NumLock Status**

Select <NumLock> key ON/Off when system boot up.

☐ **Gate A20 Option**

Select Gate A20 controlled by Keyboard controller (Normal) or Port 92 (Fast).

☐ **Typematic Rate Setting**

Select "Typematic Rate Setting" Enabled to set,

Typematic Rate (Chars/Sec): Number of characters repeated in one second.

Typematic Delay (Msec): When holding one key, set the time between the first and second character displayed.

☐ **Security Option**

Select security mode,

Setup: Require password to permit BIOS setup utility.

System: Require password to permit boot-up and BIOS setup utility.

☐ **APIC Mode**

Select APIC (Advanced Programmable Interrupt Controller) Enabled/Disabled.

☐ **MPS Version Control For OS**

Select MPS (Multiprocessor Specification) Version 1.4 to added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. It is also required for a secondary PCI bus to work without the need for a bridge. Select Version 1.1 for older Operating Systems.

☐ **OS Select For DRAM > 64M**

Select "OS2" only if you are running older version of IBM OS/2 Operating System with greater than 64MB of RAM on the system. Otherwise select "Non-OS/2" setting.

☐ **Report No FDD For WIN 95**

If running Windows 95/98 without floppy disk drive, select "Enabled" to release IRQ6. This is required to pass Windows 95/98's SCT test. If select "Disabled", BIOS will not report missing floppy drive to Win95/98.

☐ **Small Logo(EPA) Show**

Select EPA (Environmental Protection Agency) Energy Star logo appears during the system boot-up process.

## 2.4 Advanced Chipset Features

Phoenix – AwardBIOS CMOS Setup Utility  
Advanced Chipset Features

<p>System BIOS Cacheable [ Enabled ]</p> <p>Memory Hole At 15M-16M [ Disabled ]</p> <p>▶ PCI Express Root Port Func [ Press Enter ]</p> <p><b>** VGA Setting **</b></p> <p>PEG/Onchip VGA Control [ Auto ]</p> <p>PEG Force X1 [ Disabled ]</p> <p>On-Chip Frame Buffer Size [ 8MB ]</p> <p>DVMT Mode [ DVMT ]</p> <p>DVMT/FIXED Memory Size [ 128MB ]</p> <p>Boot Display [ CRT ]</p> <p>Panel Number [ 1280x1024-24 ]</p> <p>Onboard LAN1 [ Enabled ]</p> <p>Onboard LAN2 [ Enabled ]</p> <p>Onboard Audio [ Enabled ]</p> <p>Onboard DVI [ Enabled ]</p>	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶</p>
---	--

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

### ☐ System BIOS Cacheable

Select Enabled to caching of the system BIOS at F0000h-FFFFFh, resulting in better system performance. However, if any program is written to this memory area, the system error may result.

### ☐ Memory Hole At 15M-16M

Select Enabled to improve performance, certain space in memory can be reserved for ISA cards. The memory must be mapped into the memory space below 16 MB.

### ☐ PCI Express Root Port Func

Press <Enter> to setting PCI Express function.

### ☐ PEG/Onchip VGA Control

Select VGA control by PEG (PCI-Express Graphic) or onboard chipset.

☐ **PEG Force X1**

Select “PEG Force X1” Enabled/Disabled.

☐ **On-Chip Frame Buffer Size**

Select share system memory 1MB/8MB.

☐ **DVMT Mode**

DVMT (Dynamic Video Memory Technology) allowing the system to dynamically allocate memory resources according to the demands of the system at any point in time, that improve efficiency of the memory allocated to either system or graphics processor.

☐ **DVMT/FIXED Memory Size**

Select DVMT (Dynamic Video Memory Technology) or FIXED memory size

☐ **Boot Display**

Select boot display device type.

☐ **Panel Number**

Select LCD panel type.

☐ **Onboard LAN1**

Select “Onboard LAN1” Enabled/Disabled.

☐ **Onboard LAN2**

Select “Onboard LAN2” Enabled/Disabled.

☐ **Onboard Audio**

Select “Onboard Audio” Enabled/Disabled.

☐ **Onboard DVI**

Select “Onboard DVI” Enabled/Disabled.

## 2.5 Integrated Peripherals

Phoenix – AwardBIOS CMOS Setup Utility  
Integrated Peripherals

<ul style="list-style-type: none"> <li>▶ OnChip IDE Device [ Press Enter ]</li> <li>▶ Super IO Device [ Press Enter ]</li> <li>Onboard Lan Boot ROM [ Disabled ]</li> <li>Watch Dog Timer Select [ Disabled ]</li> <li>Onboard Serial Port 3 [ 3E8 ]</li> <li>Serial Port 3 Use IRQ [ IRQ10 ]</li> <li>Onboard Serial Port 4 [ 2E8 ]</li> <li>Serial Port 4 Use IRQ [ IRQ11 ]</li> <li>Onboard Serial Port 5 [ 4F8 ]</li> <li>Serial Port 5 Use IRQ [ IRQ5 ]</li> <li>Onboard Serial Port 6 [ 4E8 ]</li> <li>Serial Port 6 Use IRQ [ IRQ11 ]</li> <li>▶ USB Device Setting [ Press Enter ]</li> </ul>	<div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level ▶</p> </div>
---	--

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
                   F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults



## ☐ OnChip IDE Device

Press <Enter> to set IDE and SATA device configuration.

Phoenix – AwardBIOS CMOS Setup Utility		Item Help
OnChip IDE Device		
IDE HDD Block Mode	[ Enabled ]	Menu Level ►  If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
IDE DMA transfer access	[ Enabled ]	
*** On-Chip Serial ATA Setting ***		
SATA Mode	[ IDE ]	
On-Chip Serial ATA	[ Enhanced Mode ]	
*** On-Chip PATA Setting ***		
On-Chip Primary PCI IDE	[ Enabled ]	
IDE Primary Master PIO	[ Auto ]	
IDE Primary Slave PIO	[ Auto ]	
IDE Primary Master UDMA	[ Auto ]	
IDE Primary Slave UDMA	[ Auto ]	
On-Chip Secondary PCI IDE	[ Enabled ]	
IDE Secondary Master PIO	[ Auto ]	
IDE Secondary Slave PIO	[ Auto ]	
IDE Secondary Master UDMA	[ Auto ]	
IDE Secondary Slave UDMA	[ Auto ]	

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

## ☐ **Super IO Device**

Press <Enter> to select Serial and “PWRON After PWR-Fail” configuration.

Phoenix – AwardBIOS CMOS Setup Utility  
Super IO Device

<p>Onboard Serial Port 1    [ 3F8/IRQ4 ]</p> <p>Onboard Serial Port 2    [ 2F8/IRQ3 ]</p> <p>UART Mode Select        [ Normal ]</p> <p>x RxD , TxD Active        Hi , Lo</p> <p>x IR Transmission Delay   Enabled</p> <p>x UR2 Duplex Mode        Half</p> <p>x Use IR Pins              IR-Rx2Tx2</p> <p>PWRON After PWR-Fail    [ Off ]</p>	<p style="text-align: center;">Item Help</p> <hr/> <p>Menu Level   ►</p>
---	--

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
                  F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

## ☐ **Onboard Lan Boot ROM**

Decide whether to invoke the boot ROM of the onboard LAN chip.

## ☐ **Watch Dog Timer Select**

Select Watch dog Disabled or set timer value.

## ☐ **Onboard Serial Port 3/4/5/6**

Select serial port address

## ☐ **Serial Port 3/4/5/6 Use IRQ**

Select serial port IRQ

## ☐ USB Device Setting

Press <Enter> to select USB device configuration.

Phoenix – AwardBIOS CMOS Setup Utility  
USB Device Setting

USB 1.0 Controller	[ Enabled ]	<div>Item Help</div> <div>Menu Level ►</div> <div>[Enable] or [Disable]</div> <div>Universal Host</div> <div>Controller Interface</div> <div>for Universal Serial</div> <div>Bus.</div>
USB 2.0 Controller	[ Enabled ]	
USB Operation Mode	[ High Speed ]	
USB Keyboard Function	[ Enabled ]	
USB Mouse Function	[ Enabled ]	
USB Storage Function	[ Enabled ]	
*** USB Mass Storage Device Boot Setting ***		

↑↓→← :Move
 Enter:Select
 +/-/PU/PD:Value
 F10:Save
 ESC:Exit
 F1: General Help

F5: Previous Values
 F6: Fail-Safe Defaults
 F7: Optimized Defaults

## 2.6 Power Management Setup

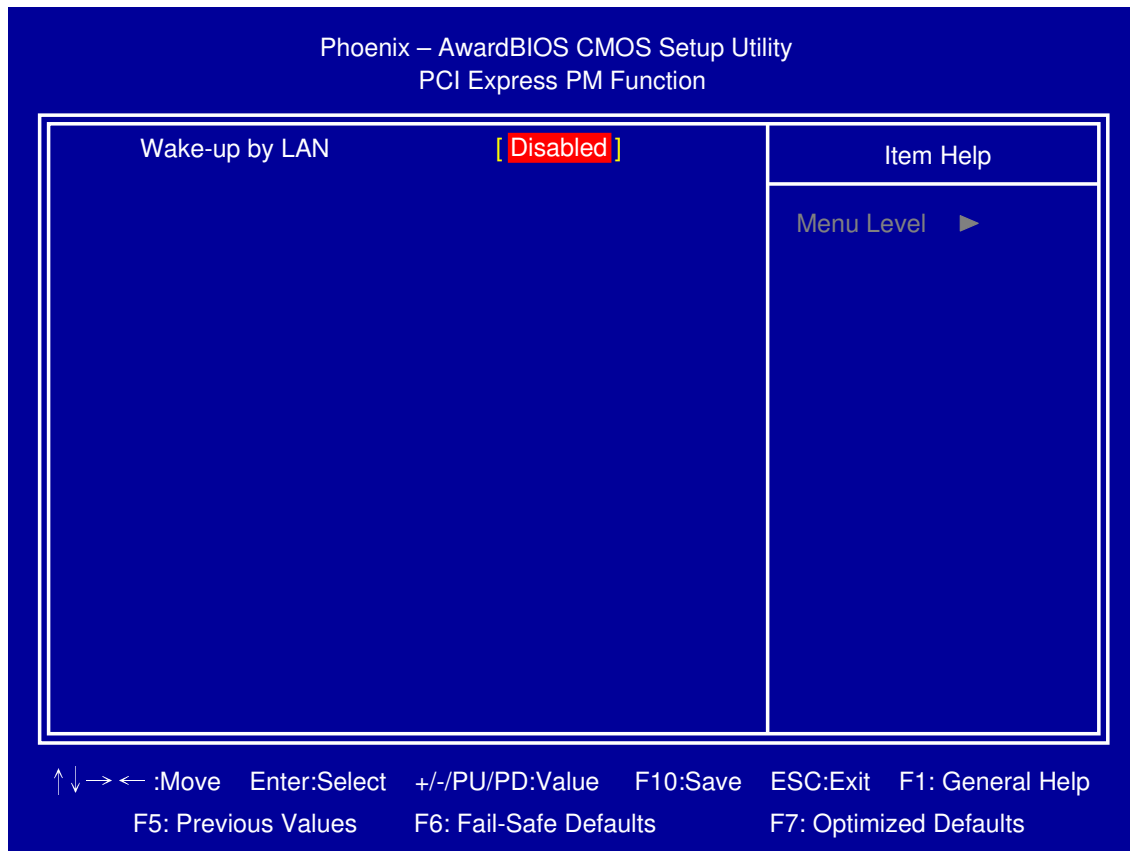
Phoenix – AwardBIOS CMOS Setup Utility  
Power Management Setup

		Item Help
▶ PCI Express PM Function	[ Press Enter ]	
ACPI Function	[ Enabled ]	
ACPI Suspend Type	[ S1(POS) ]	
x Run VGABIOS if S3 Resume	Auto	Menu Level ▶
Power Management	[ User Define ]	
Video Off Method	[ DPMS ]	
Video Off In Suspend	[ Yes ]	
Suspend Type	[ Stop Grant ]	
Suspend Mode	[ Disabled ]	
HDD Power Down	[ Disabled ]	
Soft-Off by PWR-BTTN	[ Instant-Off ]	
Wake-Up by PCI card	[ Disabled ]	
Power On by Ring	[ Disabled ]	
Resume by Alarm	[ Disabled ]	
x Date(of Month) Alarm	0	
x Time(hh:mm:ss) Alarm	0 : 0 : 0	

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

☐ **PCI Express PM Function**

Press <Enter> to select “Wake-up by LAN” Enabled/Disabled.



☐ **ACPI Function**

Select ACPI (Advanced Configuration and Power Management) Enabled/Disabled.

☐ **ACPI Suspend Type**

Select S1(POS)/S3(STR).

☐ **Power Management**

Select power saving type.

☐ **Video Off Method**

There are three methods,

Blank Screen: Writes blanks to the video buffer.

V/H SYNC + Blank: Turn off the vertical and horizontal sync. ports and write blanks to the video buffer.

DPMS: The DPMS (Display Power Management Signaling) allows BIOS control the video display.

☐ **Video Off In Suspend**

Select Video On/Off during suspend state.

☐ **Suspend Type**

There are two types,

Stop Grant: CPU goes into idle mode during suspend state.

PwrOn Suspend: CPU and system remain powered on during suspend state.

☐ **Suspend Mode**

Select system inactivity time, all devices except the CPU will be shut off.

☐ **HDD Power Down**

Select system inactivity time, the hard disk drive will be powered down while all other devices remain active.

☐ **Soft-Off by PWR-BTTN**

Select power button function,

Instant-off: Press power button will power off instantly.

Delay 4 Sec: Press power button 4 second to power off.

☐ **Wake-Up by PCI card**

Select Wake-UP by PCI device Enabled/Disabled.

☐ **Power On by Ring**

Select Power on by Ring Indicator signal from Modem.

☐ **Resume by Alarm**

Set date and time to power on system from soft-off state.

## 2.7 PnP/PCI Configurations

Phoenix – AwardBIOS CMOS Setup Utility  
PnP / PCI Configurations

		Item Help
Init Display First	[ <b>PCI Slot</b> ]	
Reset Configuration Data	[ Disabled ]	
Resources Controlled By	[ Auto(ESCD) ]	Menu Level ►
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	[ Disabled ]	
INT Pin 1 Assignment	[ Auto ]	
INT Pin 2 Assignment	[ Auto ]	
INT Pin 3 Assignment	[ Auto ]	
INT Pin 4 Assignment	[ Auto ]	
INT Pin 5 Assignment	[ Auto ]	
INT Pin 6 Assignment	[ Auto ]	
INT Pin 7 Assignment	[ Auto ]	
INT Pin 8 Assignment	[ Auto ]	
** PCI Express relative items **		
Maximum Payload Size	[ 128 ]	

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

### ☐ Init Display First

Select initial display by PCI or Onboard device.

### ☐ Reset Configuration Data

Select Enabled to reset Extended System Configuration Data (ESCD) when you exit BIOS setup utility, if you have installed new add-on card and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

### ☐ Resources Controlled By

BIOS can automatically configure all the boot and Plug and Play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

### ☐ PCI/VGA Palette Snoop

Select PCI/VGA Palette Snoop Enabled/Disabled.

☐ **INT Pin 1/2/3/4/5/6/7/8 Assignment**

Select automatically or manual assigned INT to device.

☐ **Maximum Payload Size**

Setup maximum payload size for PCI Express devices.

## 2.8 PC Health Status

Phoenix – AwardBIOS CMOS Setup Utility  
PC Health Status

Shutdown Temperature	[ Disabled ]	Item Help  Menu Level ►
CPU Warning Temperature	[ Disabled ]	
Current System Temperature	54°C / 129°F	
Current CPU Temperature	57°C / 134°F	
Current NB Temperature	54°C / 129°F	
Fan1 Speed	0 RPM	
Fan2 Speed	3590 RPM	
Fan3 Speed	0 RPM	
Vcore	1.22 V	
+12 V	12.40 V	
+1.5 V	1.50 V	
+1.8 V	1.82 V	
+5 V	5.02 V	
+3.3 V	3.29 V	
VBAT (V)	3.00 V	
3.3VSB (V)	3.31 V	

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

☐ **Shutdown Temperature**

If CPU temperature reaches the setting value will automatic shutdown system.

☐ **CPU Warning Temperature**

If CPU temperature reaches the setting value will beep in DOS mode.



## 2.9 Frequency/Voltage Control

Phoenix – AwardBIOS CMOS Setup Utility  
Frequency / Voltage Control

Auto Detect PCI Clk      [ Enabled ] Spread Spectrum        [ Disabled ] CPU Host/SRC/PCI Clock   [ Default ]	Item Help <hr/> Menu Level   ►
---	-----------------------------------

↑↓→← :Move    Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1: General Help  
                   F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

☐ **Auto Detect PCI Clk**

Select “Auto Detect PCI Clk” Enabled/Disabled

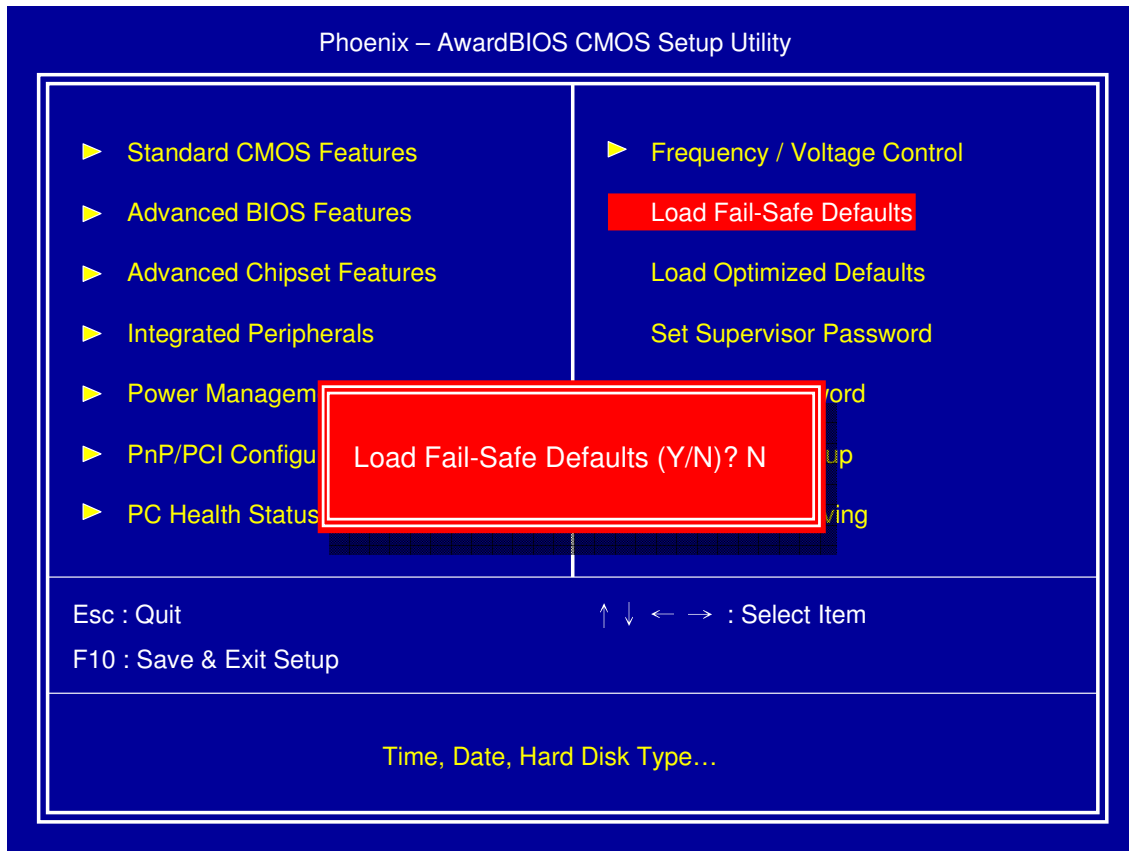
☐ **Spread Spectrum**

Select “Spread Spectrum” Enabled/Disabled.

☐ **CPU Host/SRC/PCI Clock**

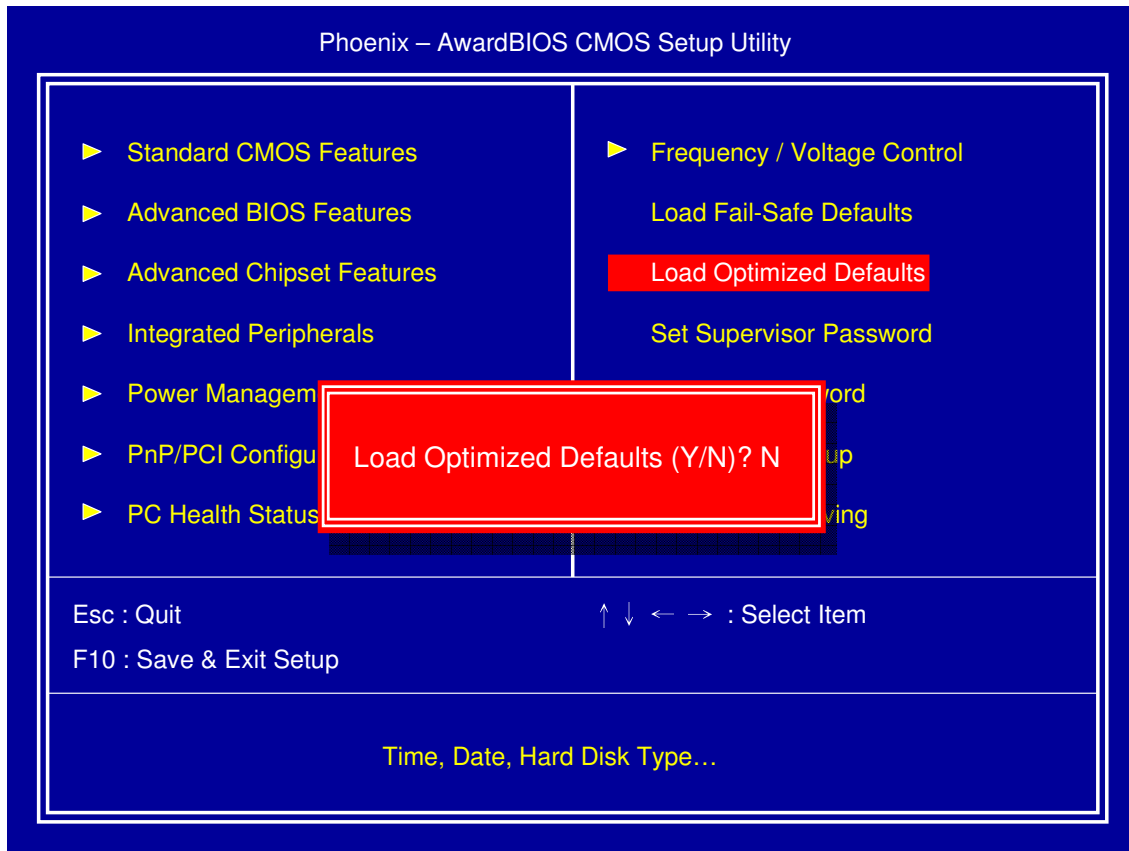
Select “CPU Host/SRC/PCI Clock” are default or others setting.

## 2.10 Load Fail-Safe Defaults



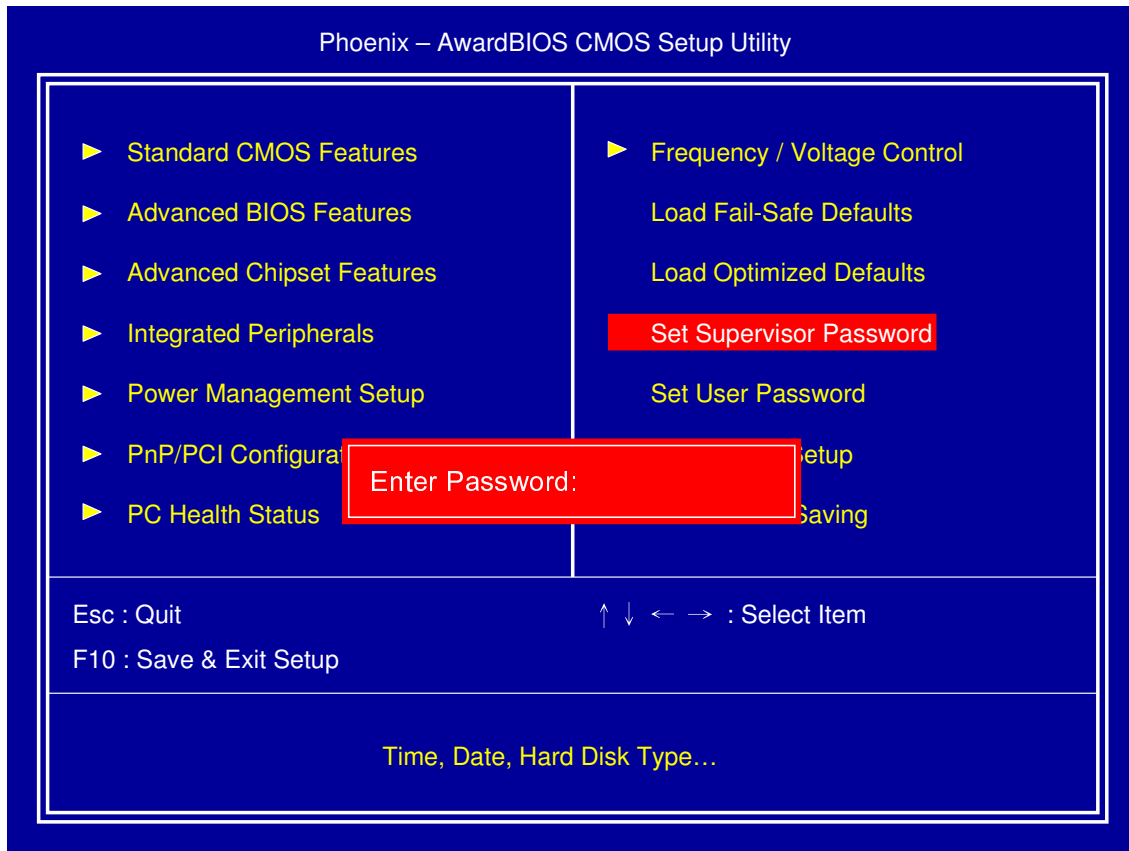
This item will set configuration for non optimized system operation.

## 2.11 Load Optimized Defaults



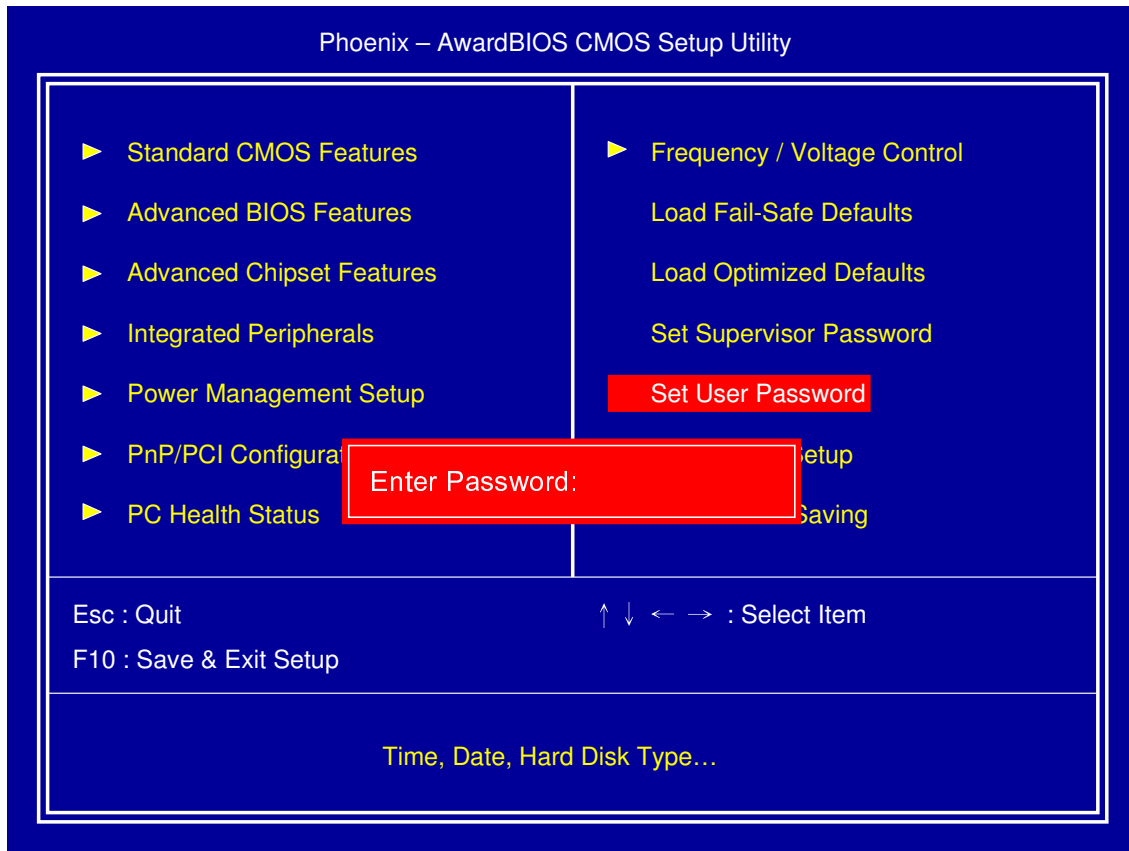
This item will restore factory default setting for optimized system operation.

## 2.12 Set Supervisor Password



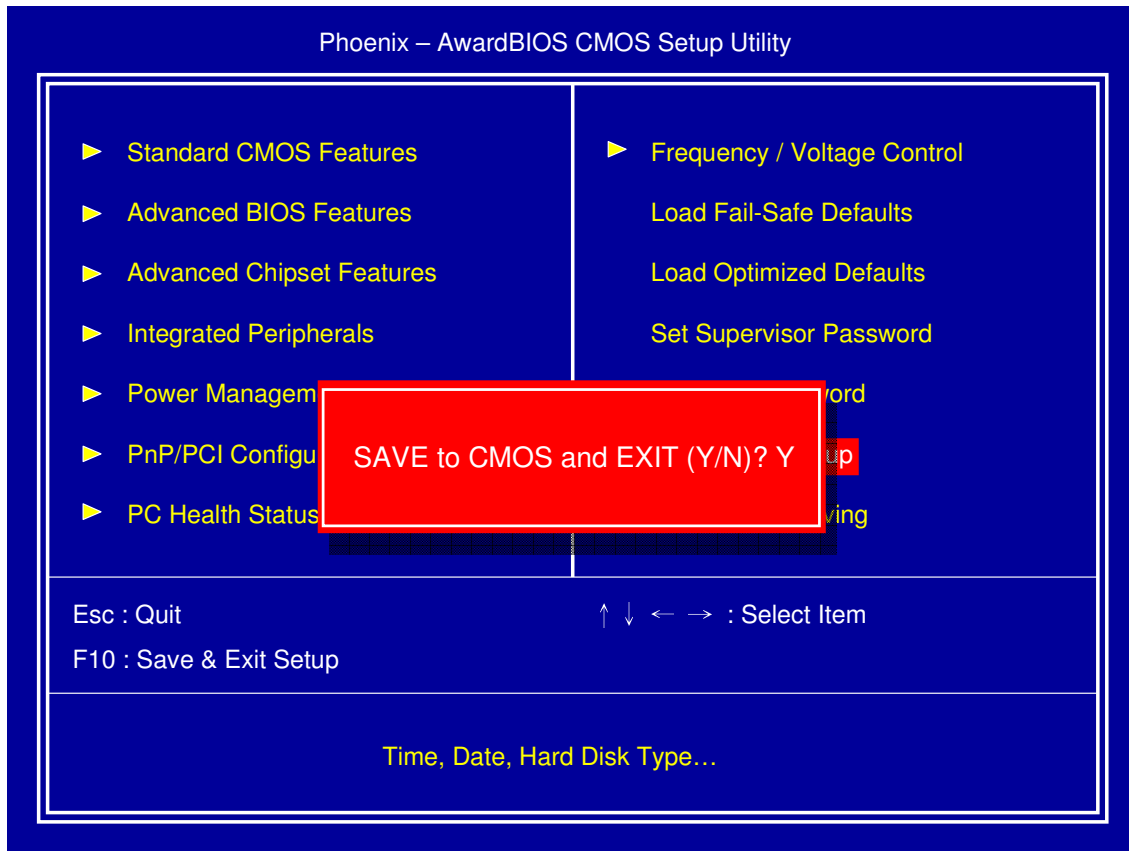
If set supervisor password, it will request typing password to enter BIOS setup utility.

## 2.13 Set User Password



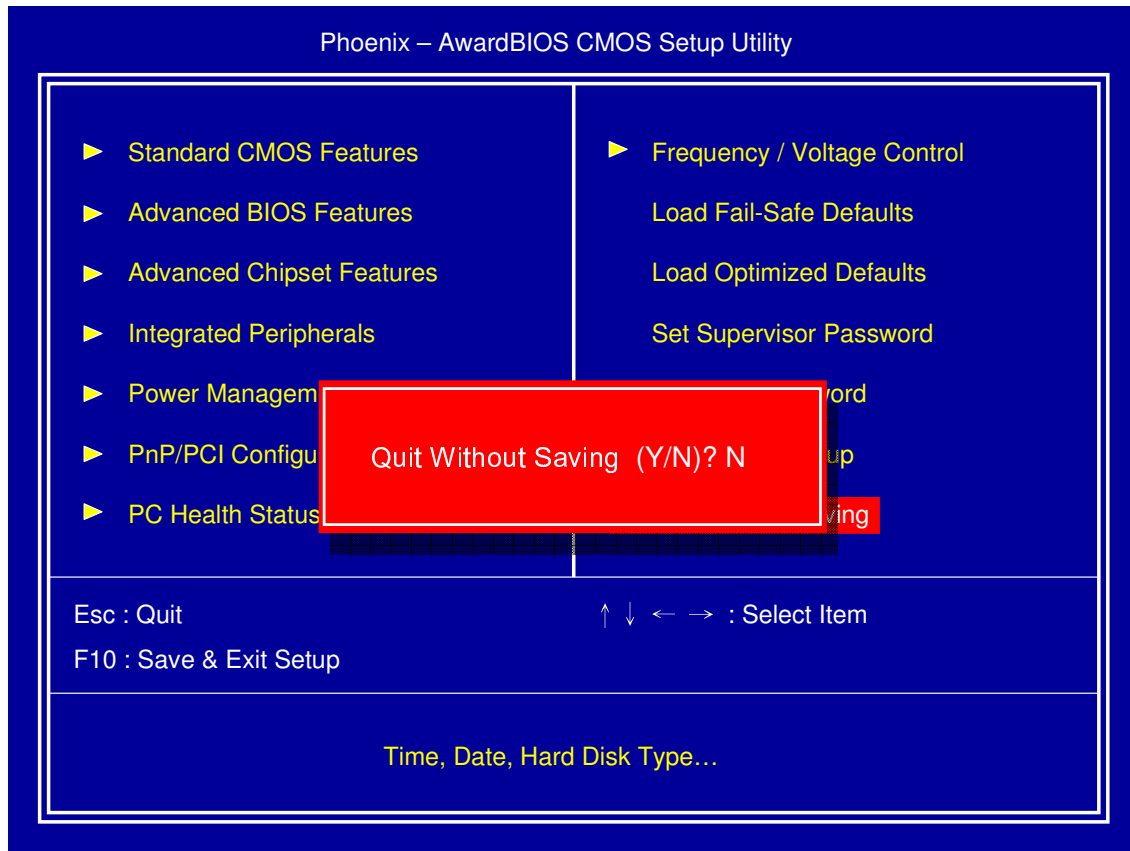
If set user password will request typing password to enter BIOS setup utility, and does not allowed to modify configuration.

## 2.14 Save & Exit Setup



This item confirm save configuration or not before exit BIOS setup utility,  
Press <Y> and <Enter> to save configuration, then reboot system.  
Press <N> and <Enter> will back to BIOS setup utility.

## 2.15 Exit Without Saving



This item confirm save configuration or not before quit BIOS setup utility, Press <Y> and <Enter> will not save configuration, then reboot system. Press <N> and <Enter> will back to BIOS setup utility.

## Chapter 3 Drivers Installation

This chapter introduces driver installation information.

Please insert the utility CD to CD-ROM drive, the install menu will appear automatically, if the install menu did not list suitable driver of Operate System or did not appear automatically, please select corresponding driver of utility CD to install.

The Windows XP driver installation step as below.

### 3.1 Intel Chipset Device Software

**Step 1.** Click “Next” to continue





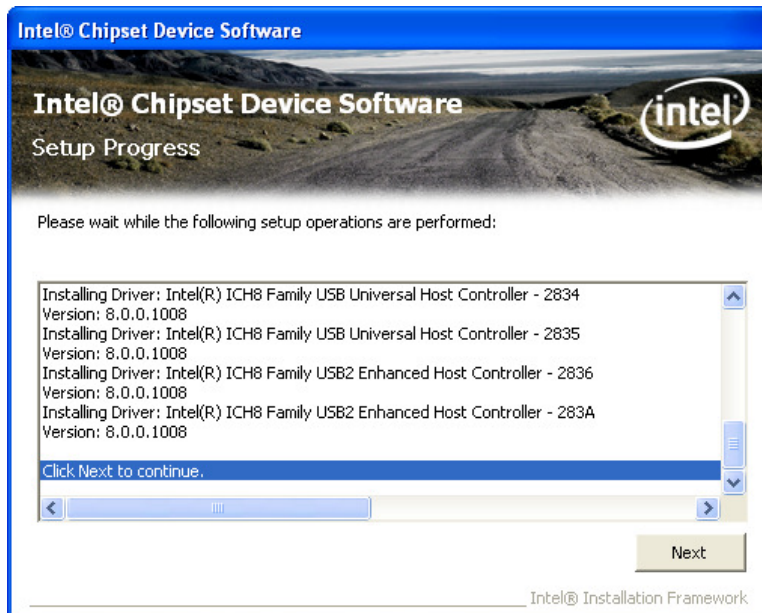
**Step 2.** Read the License Agreement and click “Yes” to continue



**Step 3.** Click “Next” to continue



**Step 4.** Click “Next” to continue

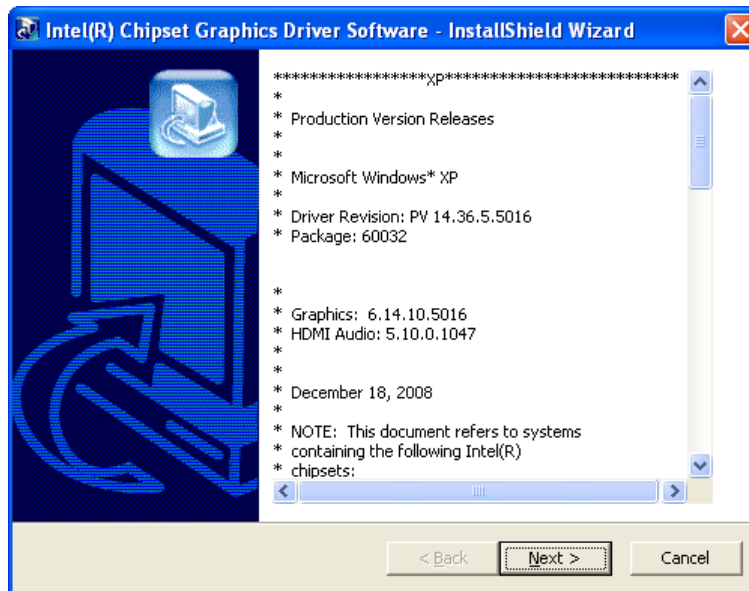


**Step 5.** Click “Finish” to complete setup



### 3.2 Intel Graphic Media Accelerator Driver

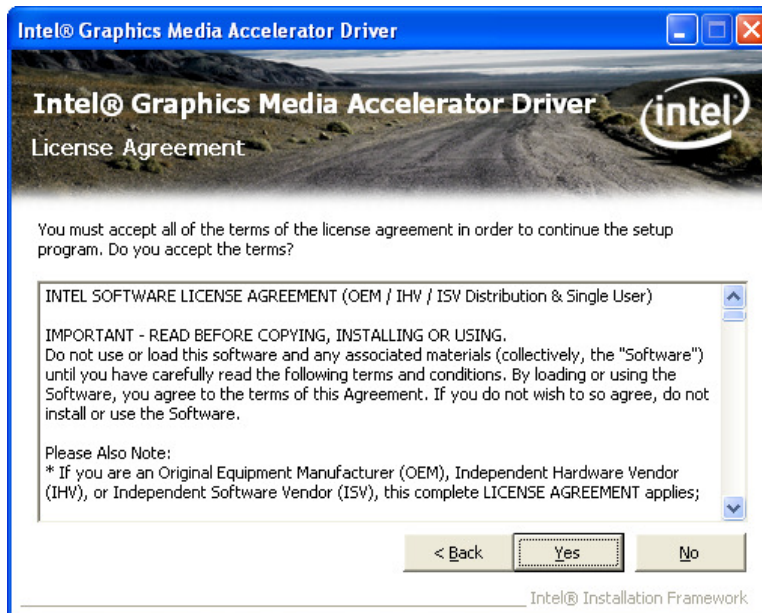
**Step 1.** Click “Next” to continue



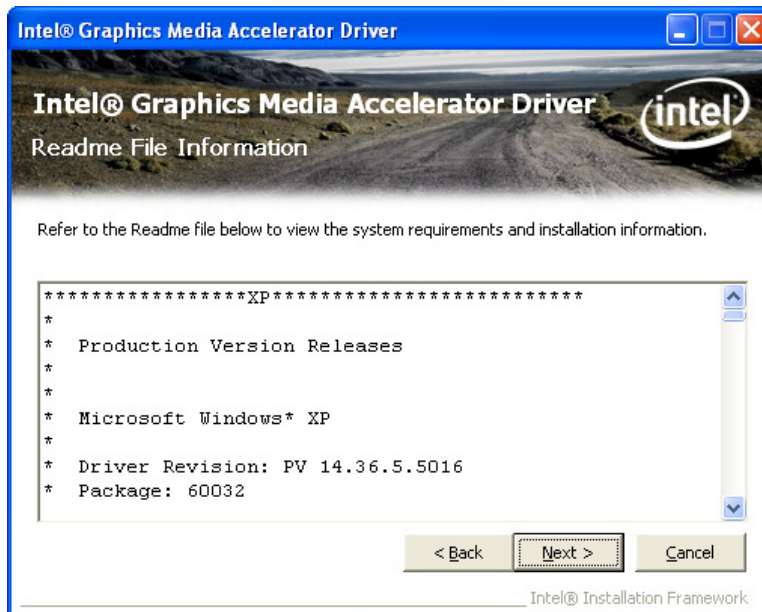
**Step 2.** Click “Next” to continue



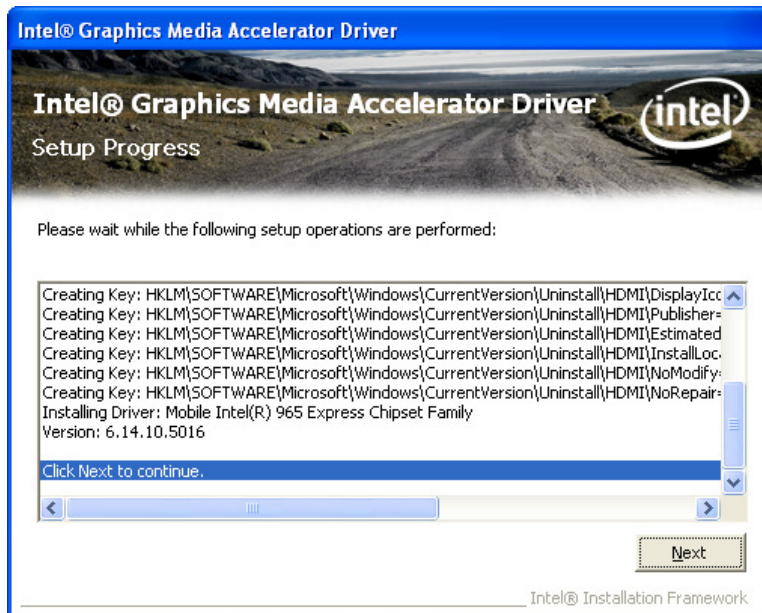
**Step 3.** Read the License Agreement and click “Yes” to continue



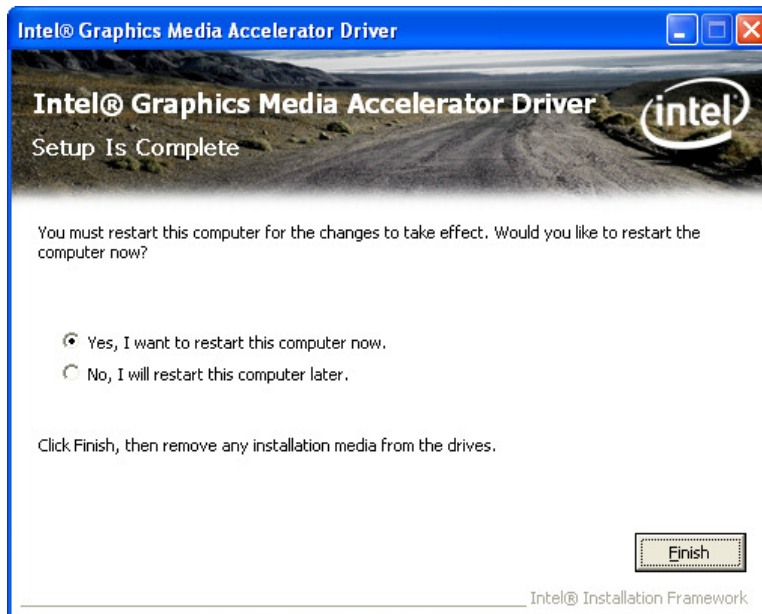
**Step 4.** Click “Next” to continue



**Step 5.** Click “Next” to continue



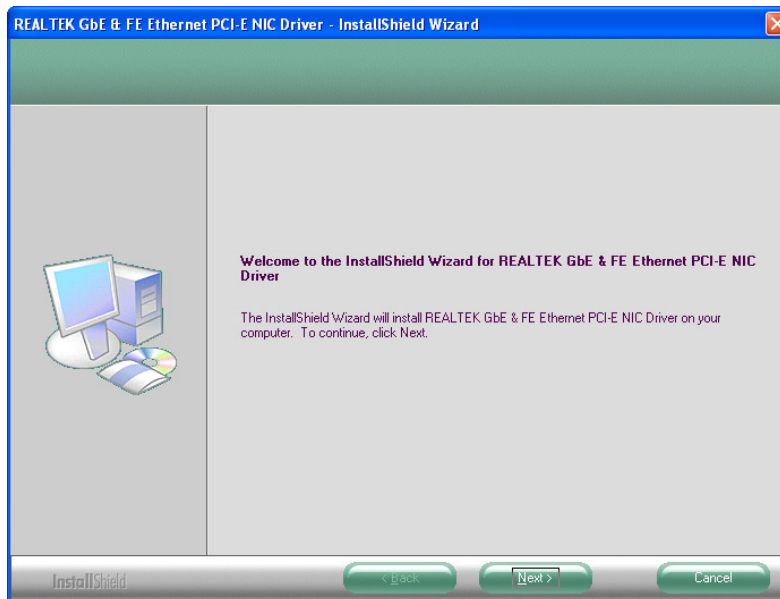
**Step 6.** Click “Finish” to complete setup



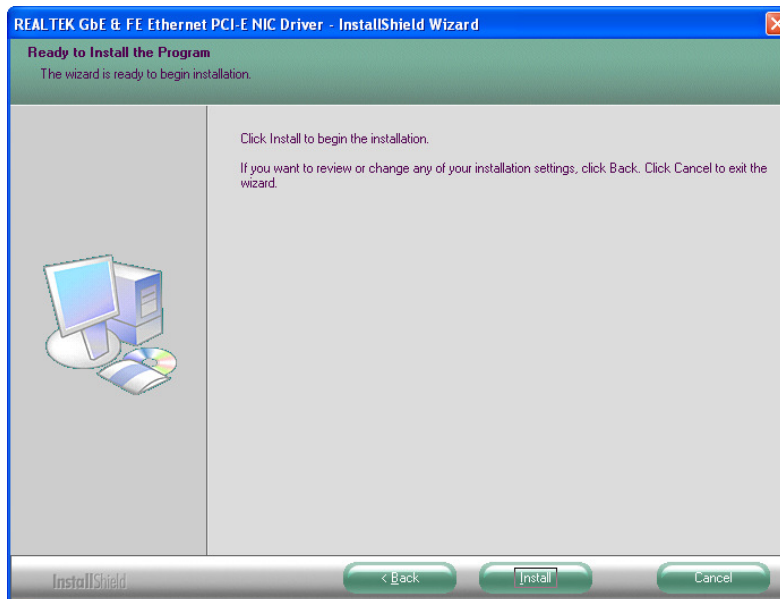


### 3.3 LAN Driver

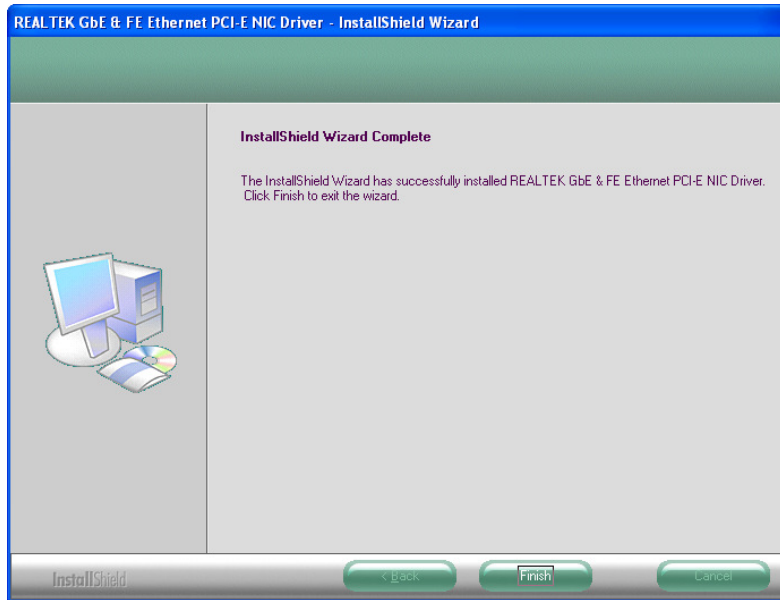
**Step 1.** Click “Next” to continue



**Step 2.** Click “Install” to continue

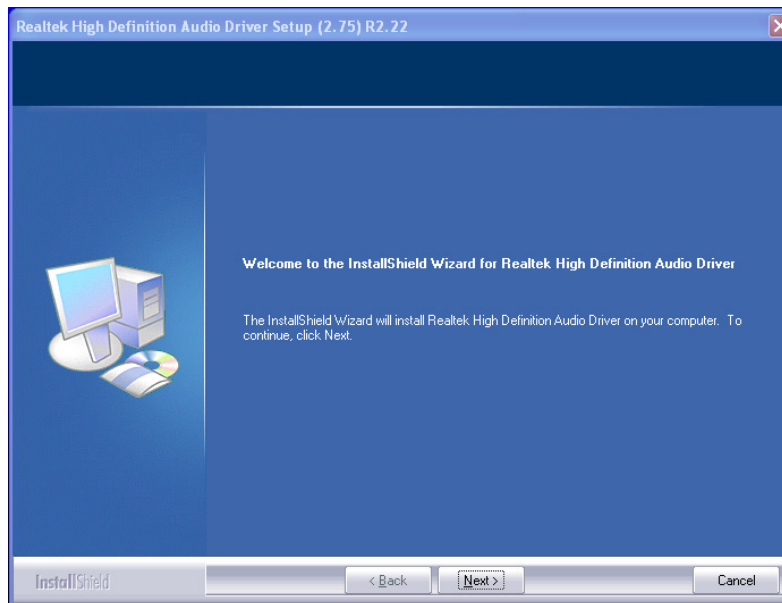


**Step 3.** Click “Finish” to complete setup

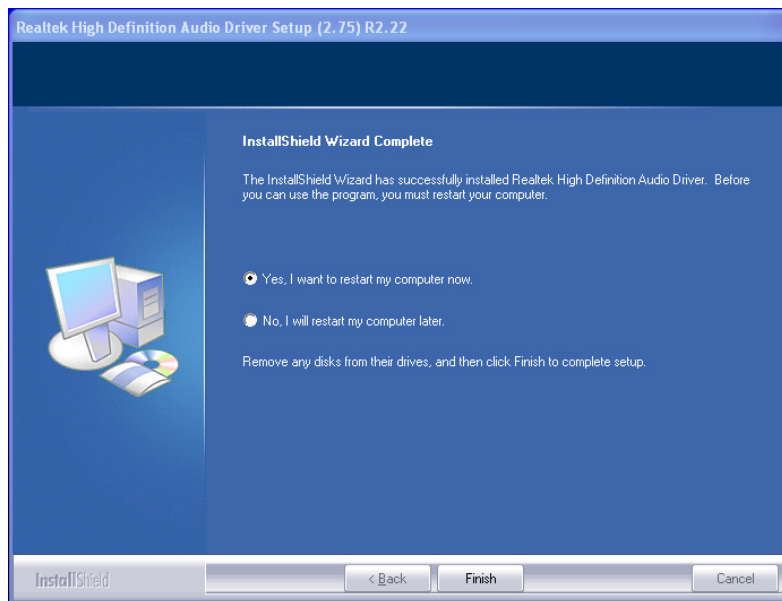


## 3.4 Audio Driver

**Step 1.** Click “Next” to continue



**Step 2.** Click “Finish” to complete setup





## Appendix-A Watchdog

The system board provides Watchdog function, the Super I/O setting step as below.

**Step 1:** CR2D, Bit0→0 (select pin77 to WDTO#)

**Step 2:** LD8, CR30, Bit0→1 (Active WDTO#)

**Step 3:** LD8, CRF7, Bit4→Write 0 to clear WDTO# status.

**Step 4:** LD8, CRF5, Bit3→0: Second mode, 1: Minute mode

**Step 5:** LD8, CRF6, Bit [7:0] →Set WDTO# Time out value. (WDTO# startup after setting the system time, or setup from step 3 ~ step 5 to restart WDT.)

## Appendix-B GPIO

The system board provides input and output ports that can be individually configured to perform a simple basic I/O function. Users can configure each individual port to become an input or output port by programming register bit of I/O selection. To invert port value, the setting of Inversion Register has to be made. Port values can be set to read or write through Data Register.

Please refer previous chapter for pin define description.

### Access Cash Drawer GPIO Programming Guide

There are two PNP I/O port addresses that can be used to configure GPIO ports,

- (1). 0x2E - **EFER** (Extended Function Enable Register, for entering Extended Function Mode)
  - **EFIR** (Extended Function Index Register, for identifying CR index number)
- (2). 0x2F - **EFDR** (Extended Function Data Register, for accessing desired CR)

Below are some example codes for demonstrate GPIO function.

**// Enter Extended Function Mode**

```
outp(0x002E, 0x87);  
outp(0x002E, 0x87);
```

**// Assign Pin121-128 to be GPIO port 1**

```
outp(0x002E, 0x29);  
outp(0x002F, inp(0x002F) | 0x01);
```

**// Select Logic Device 7**

```
outp(0x002E, 0x07);  
outp(0x002F, 0x07);
```

**// Active Logic Device 7**

```
outp(0x002E, 0x30);  
outp(0x002F, 0x01);
```

**// Select Inversion Mode**

```
outp(0x002E, 0xF2);  
outp(0x002F, 0x83);
```

**// Select I/O Mode****// Bit0~bit3 output and bit4~bit7 input**

```
outp(0x002E, 0xF1);  
outp(0x002F, 0x00);
```

**// Access GPIO ports**

```
outp(0x002E, 0xF0);  
outp(0x002F, 0x7C);
```

**// Exit Extended Function Mode**

```
outp(0x002E, 0xAA);
```

**Definitions of Variables:**

Each bit in the lower nibble of each Register represents the setting of a GPIO port.

Bit0 vs. GPIO DIO-Out 0

Bit1 vs. GPIO DIO-Out 1

Bit7 vs. GPIO DIO-Out 3

Bit4 vs. GPIO DIO-In 0

Bit3 vs. GPIO DIO-In 3

**Value of Inversion Register:**

Only lower nibble is available for this function.

When set to a '1', the incoming/outgoing port value is inverted.

When set to a '0', the incoming/outgoing port value is the same as in Data Register.

**Value of I/O Selection Register:**

Only lower nibble is available for this function.

When set to a '1', respective GPIO port is programmed as an input port.

When set to a '0', respective GPIO port is programmed as an output port.

**Value of Output Data / Input Data:**

Only lower nibble is available for this function.

If a port is assigned to be an output port, then its respective bit can be read/write.

If a port is assigned to be an input port, then its respective bit can be read only.

**Note:**

Some other functions may occupy the high nibble of the registers. Altering any content in high nibble will be undesired.